Conservation planning in the Vhembe Biosphere Reserve, Limpopo Province.

J. D. Linden 1, 3, N. Hahn 2 & P. J. Taylor 3
1 Vhembe Biosphere Reserve NPC, P.O. Box 1536 Makhado 0920, South Africa
2 Herbarium South Africa, P.O. Box 510, Zeerust 2865, South Africa
3 SARChI Chair, Biodiversity Value & Change, University of Venda, Thohoyandou 0950, South Africa

Vhembe Biosphere Reserve (VBR)
• Inscribed on the UNESCO network in 2009
• Sixth RSA biosphere reserve, third in Limpopo
• Largely rural population, young (35% under 15) with high, direct reliance on natural resources: 66% of households rely on firewood for fuel
• Lends the area to a sustainable development model integrating conservation, development and logistical support as stipulated in the Man and the Biosphere (MAB) programme
• VBR fortunate to be one of the few biosphere reserves with a university within: University of Venda provides a pool of local expert knowledge for planning

Unique biodiversity
• Over 3000 vascular plant taxa (41% of all plant genera and 68% of all plant families of the Southern African region)
• 26 different vegetation types of which seven are endemic or near endemic in the South African context
• Southpansberg & Blouberg complex recognised centre of floristic diversity and endemicity 1
• Outstanding floristic diversity can be attributed to both geographical location (meeting of Temperate, Kalahari, Lowveld and Tropical inputs) and to climatic and geomorphological heterogeneity

Summary of endemic and/or rare and endangered (IUCN) VBR plant taxa in total and by geomorphological feature
Endemic Rare & endangered Total
VBR 87 27 114
Southpansberg 45 35 80
Blouberg 23 15 38
Makgabeng 4 5 9
Limpopo valley 9 5 14

Brachystegia woodland in the eastern Southpansberg, the only patch in South Africa. Brachystegia apiculata is appropriately known in Tsirehvena as mutsua, ‘the one that is left behind’. (Photo: G. Venters)

Challenges
• Large area (~30 000 km²) and population (~1.5 million) covering 8 local municipalities
• Potential massive exploitation of coal and other mineral resources, especially in the Limpopo Valley
• Spatial and resource inequalities combined with population growth have led to widespread environmental degradation particularly in the ex-‘Homelands’
• Current protected area network (15% of VBR) incorporates little biodiversity pattern and process, lacking connectivity, not meeting SANBI targets

Preliminary analysis
• The 2013 Limpopo Conservation Plan models critical biodiversity and ecological support areas: “the minimum area necessary to maintain biodiversity pattern and ecological processes in the landscape”. 2
• The figure (left) shows VBR core zones (protected areas) in relation to the Conservation Plan which states that, to meet conservation targets, the Limpopo protected area network needs to be increased by an additional 65%. 3

Mining & prospecling in high value areas on the Southpansberg northern foothills. The figure (left) shows Critical Biodiversity and Ecological Support Areas over land with mineral rights held by Coal of Africa Limited. Map inset: Karoo coal fields (dark grey) within the VBR area. The chart (below) shows percentage of each category in the two project areas.

Below: summary of selected habitat types which are vulnerable (VU), endangered (EN) or endemic or near endemic to the VBR showing national extent, extent within the VBR (km² & % of national extent), extent within national protected areas, % protected in VBR, biodiversity conservation target, provincial status and endemicity. (LT = least threatened)

<table>
<thead>
<tr>
<th>Habitat type</th>
<th>National extent (km²)</th>
<th>VBR extent (km²)</th>
<th>% in VBR</th>
<th>Protected national (%)</th>
<th>Protected (%)</th>
<th>Biodiversity (1%)</th>
<th>Provincial status</th>
<th>Endemicity to VBR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cathedral Mopane Bushveld</td>
<td>276</td>
<td>276</td>
<td>100</td>
<td>100</td>
<td>19</td>
<td>LT</td>
<td>Endemic</td>
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<tr>
<td>Limpopo Ridge Bushveld</td>
<td>2795</td>
<td>2710</td>
<td>97</td>
<td>99</td>
<td>100</td>
<td>LT</td>
<td>Near</td>
<td></td>
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<tr>
<td>Lowveld Riverine Forest</td>
<td>158</td>
<td>32</td>
<td>20</td>
<td>92</td>
<td>0</td>
<td>VU</td>
<td>Not</td>
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<tr>
<td>Makuleke Sandy Bushveld</td>
<td>2077</td>
<td>2000</td>
<td>96</td>
<td>34</td>
<td>6</td>
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<td>Musina Mopane Bushveld</td>
<td>8797</td>
<td>8566</td>
<td>97</td>
<td>2.2</td>
<td>100</td>
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<td>Southpansberg Mountain Bushveld</td>
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<td>4119</td>
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<td>3.6</td>
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<td>Southpansberg Summit Sourveld</td>
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<td>86</td>
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<td>10.8</td>
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<td>Transvaal Sour Bushveld</td>
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<td>883</td>
<td>26</td>
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<td>Vhembe/Venda Mtiombo</td>
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<td>0.3</td>
<td>100</td>
<td>0</td>
<td>LT</td>
<td>Endemic</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The environmental impact of 87% - 13% land distribution: present land transformation shown within Apartheid era administrative areas in the VBR. Total transformed area in the VBR is 3 438 km² (11%).

Above: present-day land transformation within the former Apartheid administrative areas showing proportion natural and transformed (light grey) in %, Figure for the former Transvaal excludes Kruger National Park.

Way forward
• Environmental Management Framework process initiated with DEA including revision of current core and buffer zonation and associated land use guidelines
• Consideration of other data (e.g. socio-economic heritage) that affect conservation planning
• Biodiversity specialists (University of Venda) reviewing & refining Limpopo Conservation Plan & protected area network: incorporation of biodiversity pattern (e.g. endemic & listed species) & process (e.g. forcing connectivity)
• Adaptive management plans for conservation in different areas of the VBR (revision of strictly protected area based core zonation)

Sources

